

REMARKS

In the Office Action, claim 13 is rejected pursuant to 35 U.S.C. § 112, first paragraph; and claims 2-4, 6-9 and 13-16 are rejected pursuant to 35 U.S.C. § 103 in view of EP0724305 ("Akashi") and US Patent No. 5,522,127 ("Ozaki"). Claims 2-4, 6, and 8 have been amended; claims 13-16 have been canceled without prejudice or disclaimer. In addition to claims 1, 5 and 10-12 that were previously canceled; and claim 17 has been newly added as the sole independent claim presently pending. Applicants believe that the rejection should be withdrawn as further detailed below.

With respect to the § 112 rejection, claim 13 has been canceled without prejudice or disclaimer, and thus, this rejection should be withdrawn in view of same.

Further, the claims have been rejected for alleged obviousness reasons as previously discussed. In response, Applicants have added new independent claim 17. Claim 17 is directed to a gel electrolyte secondary cell that includes a positive electrode, a negative electrode, and a gel electrolyte. The negative electrode at least includes a current collector in a powder mixture including a graphitized carbonaceous material obtained from a plurality of meso-carbon microbeads as claimed. The gel electrolyte includes an electrolyte salt, a non-aqueous solvent and a high-molecular weight material wherein the non-aqueous solvent consists essentially of propylene carbonate in an amount of about 35 mol% and ethylene carbonate wherein the graphitized carbonaceous material of the negative electrode has a specific surface area that ranges from 0.1 m²/g to 1.2 m²/g.

With respect to the primary Akashi reference, this reference fails to provide the negative electrode including the graphitized carbonaceous material as claimed. Further, clearly this reference fails to suggest a graphitized carbonaceous material with specific surface area as claimed, let alone in combination with the positive electrode and gel electrolyte that, at least, includes a non-aqueous solvent consisting essentially of propylene carbonate in an amount of about 35 mol% and ethylene carbonate. Indeed, the examples in Akashi merely refer to electrode materials that are made of metal, such as platinum (See, Akashi, page 4, lines 46-50) and lithium (See, Akashi, page 9, lines 39 and 40). Therefore, Akashi on its own is clearly distinguishable from the claimed invention for at least these reasons.

Further, Applicants do not believe that the Patent Office can rely solely on the Ozaki reference to remedy the deficiencies of Akashi. In Ozaki, the preferred specific surface area of the mesophase graphite particles is 2.5 to 5.0 m²/g. This is clearly outside of the claimed surface area range of 0.1 to 1.2 m²/g for the graphitized carbonaceous material. Indeed, Ozaki provides that if the specific surface area is less than 1.0 m²/g, the high-rate discharge characteristic and rapid-charging characteristics are inferior. In contrast, Applicants have demonstrated that the properties of the gel electrolyte cell are enhanced as the specific surface area of the graphitized carbonaceous material decreases, such as from 3.6 m²/g to 1.2 m²/g as illustrated in the increase of charging capacity shown in Table 1 of Applicants' specification on page 20. Again, Ozaki prefers the specific surface area to be at least 2.5 m²/g which is more than twice as much as the upper specific surface area limit as claimed. Even at these higher specific surface area values, Ozaki still disfavors the use of propylene carbonate with the mesophase graphite-based material. See, Ozaki, column 7, lines 5-11.

Again, Applicants have demonstrated that a gel electrode secondary cell can combine the use of a negative electrode including a meso-carbon micro-bead based material in addition to a gel electrolyte with a non-aqueous solvent that consists essentially of propylene carbonate and ethylene carbonate as claimed. Clearly, the combination of propylene carbonate and a meso-carbon based electrode material, let alone a meso-carbon based electrode material at any specific surface area, was disfavored in the art as evidence in Ozaki and discussed above.

Based on at least these reasons, Applicants believe that the cited art is distinguishable from the claimed invention. Moreover, Applicants believe that the obviousness rejection is improperly based on hind-sight reconstruction to justify the alleged modification of the art in support the obviousness rejection.

Accordingly, Applicants respectfully submit that the obviousness rejection should be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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